

# FETAL OUTCOME IN SINGLETON PREGNANCIES COMPLICATED WITH POLYHYDRAMNIOS FROM 28 TO 36 WEEKS

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## ABSTRACT

**Objectives:** To describe the fetal outcome in singleton pregnancies complicated with polyhydramnios from 28 to 36 weeks.

**Study design:** Descriptive study.

**Place and duration of study:** Department of Obstetrics and Gynaecology, Combined Military Hospital, Lahore from July 2007 to July 2008.

**Patients and Methods:** Fifty pregnant women diagnosed with polyhydramnios were included. They were evaluated on ultrasonography, amniotic fluid index greater than 25cm or a maximum vertical pocket of liquor greater than 8cm confirmed the diagnosis of polyhydramnios and associated congenital abnormality.

**Results:** A total of 50 patients were included in the study. Mean gestational age was  $34.2 \pm 1.4$ . Thirty patients (60%) had vaginal delivery while cesarean section was done in 20 patients (40%). Forty patients (80%) had live birth whereas 4 (8%) and 6 (12%) patients had stillbirth and IUD respectively. Weight of 56% of the babies was less than 2.5kg and 44% of the babies more than or equal to 2.5kg with mean weight of  $2.4 \pm 0.3$ kg. Normal babies were seen in 40 patients (80%) while 10 babies (20%) had congenital abnormalities. Out of 40 live born babies, 18 (45%) did not require resuscitation while 22 (55%) were shifted to NICU. Two babies (9%) expired in nursery and 20 babies (91%) were discharged healthy.

**Conclusion:** Polyhydramnios carries a higher incidence of adverse perinatal outcomes, such as fetal distress during labor, low Apgar scores, NICU transfer, fetal death, congenital anomalies and neonatal death from the study population.

**Key Words:** Amniotic fluid, Congenital Anomaly, Polyhydramnios.

## INTRODUCTION

Polyhydramnios is the term given to excess of amniotic fluid (>2000ml) and amniotic fluid index >95th centile for gestation as assessed on ultrasonography. Polyhydramnios is also defined as maximum vertical pocket of liquor greater than 8cm<sup>1</sup>.

Polyhydramnios complicates 0.5-2% of pregnancies. It is associated with maternal diabetes in 20% and congenital fetal anomaly in 5% cases. The incidence of antepartum fetal death is 0.6% and postpartum death is 2.8%<sup>2</sup>.

Amniotic fluid is produced by fetal urine with a small contribution from fetal membranes and fetal lungs. The main determinant of its turnover is fetal swallowing. The pathological conditions that lead to excess of amniotic fluid are represented by excessive production or by reduction of the physiological turnover. The

resulting increase in uterine volume and accelerated fetal growth is a cause of premature delivery<sup>3</sup>.

Common causes of polyhydramnios are fetal abnormalities, maternal diabetes and twin pregnancies, but in 60 % of cases the cause is not known<sup>4</sup>.

Polyhydramnios is determined sonographically by demonstrating single amniotic fluid pocket with depth of 8cm or greater. The frequency of fetal anomalies increased with increase in the size of amniotic fluid pocket<sup>5</sup>.

Presence of polyhydramnios increases the risk of preterm delivery and babies require NICU transfer due to intrapartum fetal distress or prematurity<sup>3</sup>.

Every patient of polyhydramnios should have a complete investigation profile including expert ultrasonography, amniocentesis for chromosomal analysis and glucose tolerance

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testing. The incidence of aneuploidy in patients with unexplained polyhydramnios (3.2%) is much higher than the reported incidence of major karyotype abnormalities in live births (0.59%)<sup>6</sup>.

The aim of this study was to observe the fetal outcome in pregnancies complicated by polyhydramnios as all such pregnancies need to be investigated to determine the underlying cause.

## **PATIENTS AND METHODS**

The study was conducted in the Department of Obstetrics and Gynaecology, Combined Military Hospital, Lahore. Non-probability convenience sampling was done.

### **Sample selection**

#### **Inclusion Criteria**

All pregnant patients with gestational period between 28-36 weeks having amniotic fluid index greater than 25 cm.

#### **Data collection**

All pregnant women diagnosed with polyhydramnios presenting at outpatient department of obstetrics and gynaecology, labour room and antenatal ward were selected for the study after taking informed consent.

These patients were evaluated on the basis of history, physical examination and ultrasonography. However, blood glucose estimation in all patients and glucose tolerance test in high risk cases was done to rule out diabetes mellitus. On ultrasonography amniotic fluid index greater than 25cm or a maximum vertical pocket of liquor greater than 8cm confirmed the diagnosis of polyhydramnios and associated congenital abnormality.

After taking verbal consent from parents fetus was evaluated at the time of delivery to assess the fetal outcome. Fetal outcome measures included gestational age at the time of delivery, stillbirths or IUD (intra-uterine death) and congenital abnormalities undetected during antenatal period. Other parameters included birth weight and NICU transfer. Predesigned proforma were filled in for each patient. Chromosomal analysis was not done as the test is expensive and not easily available.

Moreover couples were not ready for invasive procedures.

### **Data analysis**

Data was analyzed using SPSS version 17. Descriptive statistics were used to describe the data. Mean and standard deviations (SD) were used for quantitative variables while frequency and percentages were used for qualitative variables.

## **RESULTS**

Total of fifty patients were studied during the study period. Average gestational age was 34.2 weeks (SD 1.4). Majority of the patients (60%) had weight more than 70 kg while the rest (40%) had less than 65 kg. Route of delivery is described in Figure which highlights the increased percentage of cesarean section (40%) as compared to general population. Table-1 reveals the fetal outcome showing the majority of patients having live births. Average weight of babies was 24±0.3 kg, weight of 56% of babies was less than 2.5 kg while 44% of babies were more than or equal to 2.5kg. Majority of babies were normal as shown in table 2. Out of forty live born babies 22 (55%) were shifted to NICU while 18 (45%) babies did not require resuscitation. Out of 22 babies of NICU 20 (90%) were discharged alive and healthy while 2 (10%) expired.

## **DISCUSSION**

Polyhydramnios, the pathological accumulation of amniotic fluid is clinically insignificant if mild whereas larger increase in amniotic fluid volume is associated with increased perinatal morbidity due to preterm delivery, cord prolapse, underlying comorbidities and congenital malformations. In this study spanning over 12 months period, prevalence of polyhydramnios in pregnancy was 8% of obstetric population which is comparable to 7.8% in a study carried out by Mathew et al<sup>6</sup>.

The common causes of polyhydramnios in our study were diabetes mellitus and congenital fetal abnormalities while no cause was found in 60% of cases which is also consistent with the results of a study conducted by Volante et al in 2004<sup>3</sup>.

In this study 20% of patients were found to have impaired blood glucose levels. This is comparable with results of study carried out by Thompson et al<sup>8</sup>.

This 10 babies (20%) had congenital malformations. This rate is comparable with that of a local study by Waheed and Ashraf where it is 30%<sup>9</sup>.

Presence of polyhydramnios significantly increases the rate of preterm delivery, cesarean section, fetal distress during labor, NICU transfer and neonatal death. The rate of cesarean section was 40% which very well compares with 47% in a study by Biggio et al<sup>10</sup>.

The most common indication for cesarean section was fetal distress to prevent intrapartum stillbirth which is significantly associated with polyhydramnios and congenital malformation as mentioned by Sheiner et al<sup>11</sup>.

Pregnancies with severe polyhydramnios have a poorer outcome and fetuses have a significantly higher incidence of congenital anomalies. In our study 40 patients (80%) had live births which is comparable with live births of 72% and stillbirths of 28% in the study by Pauer et al<sup>12</sup>.

The relationship of parity, weight gain and hypertension with polyhydramnios is difficult to describe. However, an increase in number of polyhydramnios is seen in multiparous patients with more body weight gain during pregnancy as is also seen by Chen et al<sup>13</sup>.

Antenatal care should be directed to maternal and fetal surveillance in patients with polyhydramnios. These patients should have a planned hospital delivery to reduce the morbidity and mortality associated with polyhydramnios.

## CONCLUSION

Polyhydramnios may not have an underlying cause but is definitely associated

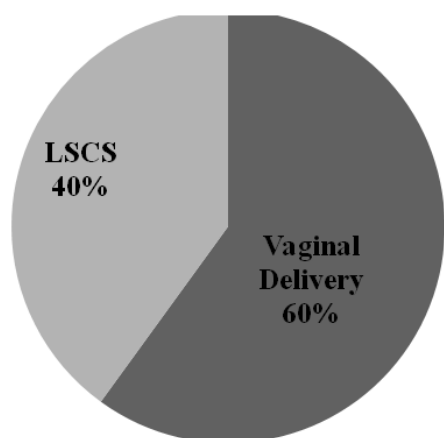
with adverse perinatal outcome in terms of intrapartum fetal distress, poor Apgar score, necessitating transfer to NICU, fetal loss and neonatal death. Detailed antepartum fetal well-being surveillance, intensive intrapartum monitoring and vigilance in postpartum period are warranted so that fetal outcome is improved.

## RECOMMENDATIONS

All patients with idiopathic polyhydramnios should be counselled to undergo amniocentesis for fetal chromosomal studies. However, this hi-tech is expensive and is not feasible most of the times.

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**Figure: Distribution of cases by route of delivery (n=50)**

**Table-1: Distribution of cases by fetal outcome (n=50)**

Fetal Outcome	No. of cases	Percentage
Live birth	40	80.0
Still birth	04	08.0
IUD	06	12.0

**Table-2: Fetal outcome (n=50)**

Fetal Outcome	No. of cases	Percentage
Normal babies	40	80.0
Malformed babies (dead and alive)	10	20.0